C L A I M S

1. Device (10) for arterialization of the portal vein (VP) comprising at least two catheters (11, 12) and connection means (13) between said two catheters (11, 12).

2. Device (10) as claimed in claim 1, wherein said connection means (13) comprise a three-way connection (13).

3. Device (10) as claimed in claim 1, wherein said three-way connection (13) comprises a tap (15).

4. Device (10) as claimed in claim 2, wherein said three-way connection (13) comprises elements (14a, 14b), each of which is suitable to produce coupling of said three-way connection (13) with the respective catheter (11, 12).

5. Device (10) as claimed in any one of the previous claims, wherein said catheters (11, 12) are heparinized and radiopaque.

6. Kit (100) for application to the body (B) of a patient of a device (10) as claimed in any one of claims 1-4; the kit (100) comprising:

(i) two radiopaque and heparinized catheters (11, 129);

(ii) two metal guides (16, 16a) to insert said catheters (11, 12) into the body (B);

(iii) two syringes (S2, S3) each having a respective needle (A1, A2);

(iv) two feed devices (17, 17a) to move said guides (16, 16a) forward inside the body (B);

(v) a three-way connection (15); and

(vi) a syringe (S1).

7. Kit (100) as claimed in claim 6, wherein there are various needles (A1) having different dimensions according to

the system chosen for insertion of said catheter (11).

8. Kit (100) as claimed in claim 7, wherein the dimensions of said needle (A1) vary from 15 cm to 30 cm.

9. Use of a kit (100) for application to the body (B) of a patient of a device (10) as claimed in any one of claims 1-5; said kit (100) comprising:
(i) two radiopaque and heparinized catheters (11, 129);
(ii) two metal guides (16, 16a) to insert said catheters (11, 12) into a body (B);
(iii) two syringes (S2, S3) each having a respective needle (A1, A2);
(iv) two feed devices (17, 17a) to move said guides (16, 16a) forward inside the body (B);
(v) a three-way connection (15); and
(vi) a syringe (S1).

10. Pack comprising at least a kit (100) as claimed in any one of claims 6-8.

11. Machine (1000) for regeneration of a human liver (L); machine (1000) comprising at least two catheters (200, 214), an extracorporeal circuit (CIR) designed to connect said two catheters (200, 214) and at least an oxygenation device (205) connected to said extracorporeal circuit (CIR), said oxygenation device (205) being suitable to introduce oxygen into the blood in extracorporeal circulation in said circuit (CIR).

12. Machine (1000) as claimed in claim 11, wherein there are also means (206, 207, 208) designed to control introduction of oxygen into the blood in extracorporeal circulation.

13. Machine (1000) as claimed in claim 12, wherein there are also means (215) for hemofiltration of the blood in

extracorporeal circulation.

14. Machine (1000) as claimed in claim 12, wherein said means (206, 207, 208) are designed to measure the hematocrit and the partial pressure of the oxygen present in the blood in extracorporeal circulation.

15. Machine (1000) as claimed in claim 11, wherein there are also means (204) designed to heat the blood in extracorporeal circulation.

16. Machine (1000) as claimed in claim 11, wherein there are also means (203) designed to introduce anticoagulating substances into the blood in extracorporeal circulation.

17. Machine (1000) as claimed in claim 11, wherein there are also means (209, 211) to detect and eliminate any air bubbles present in the blood in extracorporeal circulation.

18. Process for regeneration of a human liver (L), process characterized in that oxygenated blood is sent to said liver (L).

19. Process as claimed in claim 18, wherein the oxygenated blood undergoes a further hemofiltration process.

20. Process as claimed in any one of claims 18, 19, wherein said oxygenated blood is sent to the portal vein (VP).

21. Process as claimed in any one of claims 18-20, wherein said oxygenated blood is arterial blood taken from the body of the patient and channeled towards the liver of the patient.

22. Process for regeneration of a human liver (L); process comprising the following phases:
(a1) filling a syringe S2, provided with a needle (A1), with a

saline solution; after inserting the needle (A1) into the right jugular vein (VG) of the patient, aspiration is performed with the syringe (S2) until venous blood is visible;

(a2) detaching the body of the syringe (S2) and inserting a metal guide (16) into the lumen of the needle (A1); making the metal guide (16) slide, utilizing in this operation a device (17);

(a3) making the metal guide (16) move through the inferior vena cava (VC), the right suprahepatic vein and the portal vein (VP); the metal guide (16) being blocked with one of its ends at the portal vein (VP);

(a4) removing the needle (A1) by sliding it towards the outside on the metal guide (16);

(a5) inserting the metal guide (16) into a first catheter (11) and making the latter slide on the metal guide (16) until one end of the first catheter (11) reaches the portal vein (VP); as the first catheter (11) is radiopaque, it is possible to constantly monitor its route through the body (B) of the patient using radiological observation;

(a6) removing the metal guide (16) from the first catheter (11);

(a7) connecting the first catheter (11) to a three-way connection (13), suitably positioning a respective tap (15);

(a8) connecting the three-way connection (13) to a syringe (S1) and aspirating the blood to confirm that it is effectively portal blood; and

(a9) inserting a second catheter (129 into the femoral artery (AF) with the system described in the previous phases and connecting it with the three-way connection (13).

23. Process for regeneration of a human liver (L); process comprising the following phases:

(a1) piercing the skin and hepatic parenchyma with a needle (A1) until portal blood of the patient is aspirated by means of a syringe (S2);

(a2) detaching the body of the syringe (S2) and inserting a

metal guide (16) into the lumen of the needle (A1); making the metal guide (16) slide utilizing in this operation a device (17);

(a3) blocking the metal guide (16) with one of its ends at the portal vein (VP);

(a4) removing the needle (A1) by sliding it towards the outside on the metal guide (16);

(a5) inserting the metal guide (16) into a first catheter (11) and making the latter slide on the metal guide (16) until one end of the first catheter (11) reaches the portal vein (VP); as the first catheter (11) is radiopaque, it is possible to constantly monitor its route through the body (B) of the patient using radiological observation;

(a6) removing the metal guide (16) from the first catheter (11);

(a7) connecting the first catheter (11) to a three-way connection (13), suitably positioning a respective tap (15);

(a8) connecting the three-way connection (13) to a syringe (S1) and aspirating the blood to confirm that it is effectively portal blood; and

(a9) inserting a second catheter (12) in the femoral artery (AF) with the system described in the previous phases and connecting it with the three-way connection (13).